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PERCEPTION AND ORGANIC ACTION

EVERY reader of Bergson—and who to-day is not reading Bergson—is aware of a twofold strain in his doctrine. On the one hand, the defining traits of perception, of common sense knowledge and science are explained on the ground of their intimate connection with action. On the other hand, the standing unresolved conflicts of philosophic systems, the chief fallacies that are found in them, and the failure to make definite progress in the solution of specific philosophic problems, are attributed to carrying over into metaphysics the results and methods of the knowledge that has been formed with the exigencies of action in view. Legitimate and necessary for useful action, they are mere prejudices as respects metaphysical knowledge. Prejudices, indeed, is too mild a name. Imported into philosophy, they are completely misleading; they distort hopelessly the reality they are supposed to know. Philosophy must, accordingly, turn its back, resolutely and finally, upon all methods and conceptions which are infected by implication in action in order to strike out upon a different path. It must have recourse to intuition which installs us within the very movement of reality itself, unrefracted by the considerations that adapt it to bodily needs, that is to useful action. As a result, Bergson has the unique distinction of being attacked as a pragmatist on one side, and as a mystic on the other.

There are at least a few readers in sympathy with the first of these strains who find themselves perplexed by the second. They are perplexed, indeed, just in the degree in which the first strain has left them convinced. Surely, they say to themselves, if the irresolvable conflicts and the obscurities of philosophy have arisen because of failure to note the connection of every-day and of scientific knowledge with the purposes of action, public and private, the clarification of philosophic issues will arise by correcting this failure, that is to say, by the thorough development of the implications of the genuine import of knowledge. What an emancipation, they say to themselves,

is to come to philosophy when it actively adopts this discovery and applies it to its own undertakings!

Perhaps it is because of unredeemed pragmatic prejudice that I find myself among those who have this feeling of a baffled expectation and a frustrate logic. Nevertheless, the feeling indicates a genuine intellectual possibility, a legitimate intellectual adventure. The hypothesis that the same discovery that has illuminated perception and science will also illuminate philosophic topics is an hypothesis which has not been logically excluded; it has not even been discussed. It may, then, be worth trying. Any notion that this road has been closed in advance arises from confusion in reasoning. It rests upon supposing that the unresolved antitheses of philosophic systems and the barriers that arrest its progress have been shown to be due to importing into philosophy, from common life and from science, methods and results that are relevant to action alone. If it had been shown that the evils of philosophy have resulted from *knowingly* carrying over into it considerations whose practical character had all along been *knowingly* acknowledged, then the conclusion would follow that philosophy must throw overboard these considerations, and find a radically different method of procedure. But this is a supposition contrary both to fact and to Bergson's premises. Why not, then, try the other hypothesis: that philosophic evils result from a survival in philosophy of an error which has now been detected in respect to every-day knowledge and science? Why not try avowedly and constructively to carry into philosophy itself the consequences of the recognition that the problems of perception and science are straightened out when looked at from the standpoint of action, while they remain obscure and obscuring when we regard them from the standpoint of a knowledge defined in antithesis to action?

We are thus carried a step beyond the mere suggestion of a possibly valid adventure in philosophy. If a conception of the nature and office of knowledge that has been discarded for common sense and for science is retained in philosophy, we are forced into a dualism that involves serious consequences. Common sense knowledge and science are set in invidious contrast not merely with philosophy—a contrast that they might easily endure more successfully than philosophy—but with "reality." As long as the notion survives that true knowledge has nothing to do with action, being a purely theoretical vision of the real as it is for itself, insistence upon the operation within perceptual and conceptual "knowledge" of practical factors *ipso facto* deprives such "knowledge" of any genuine knowledge status. It gives us not reality as it is, but reality as

it is distorted and refracted from the standpoint of bodily needs. To condemn all other "knowledge" (as *knowledge*) to the realm of fiction and illusion seems a high price to pay for the rescue of philosophy from the ills that it may be suffering from.

Thus we are compelled to go still further. A philosophy which holds that the facts of perception and science are to be explained from the standpoint of their connection with organically useful action, while it also holds that philosophy rests upon a radically different basis, is perforce a philosophy of reality that is already afflicted with a dualism so deep as seemingly to be ineradicable. It imports a split into the reality with which philosophy is supposed to deal exclusively and at first hand. We account for perception and science by reference to action, use, and need. Very well; but what about action, use, and need? Are they useful fictions? If not, they must be functions of "reality," in which case knowledge that is relevant to action, useful in the play of need, must penetrate into "reality" instead of giving it a twist. With respect to *such* characters of the real, a purely theoretical vision of intuition would be refracting. Suppose that conceptions mark fabrications made in the interest of the organic body. Are the organic needs also fabrications and is their satisfaction fabrication? Either that, or else the conceptual intelligence which effects the development and satisfaction of the needs plays a part in the evolution of reality, and a part that can not be apprehended by a mode of knowing that is antithetical, in its merely theoretic character, to them. From the standpoint of philosophy, accordingly, the analytic intellect, space, and matter—everything related to useful action—must be irreducible surds, for reality as apprehended in philosophic cognition by definition omits and excludes all such affairs.

Precisely the same order of considerations applies to the theory of knowledge. Were it not for the survival in the court of last resort and of highest jurisdiction of the old idea of the separation of knowledge and action, Bergson's special analyses would point to very different conclusions from those that constitute his official epistemology. The connection with action of the characteristic methods and results of knowledge in daily affairs and in science would give us a theory of the *nature* of reflective intelligence, not a theory of its *limitations*. When theoretic and disinterested knowledge cease to occupy a uniquely privileged position with respect to reality, there also cease to be any motive and ground for denying the existence of theoretic and disinterested knowledge. Such knowledge is a fact exhibited *in* sympathetic and liberal action. Its contrast is not with the limitations of practical knowledge, but with

the limitations of the knowledge found in routine and partisan action! Genuine theoretic knowledge penetrates reality more deeply, not because it is opposed to practise, but because a practise that is genuinely free, social, and intelligent touches things at a deeper level than a practise that is capricious, egoistically centered, sectarian, and bound down to routine. To say the same thing the other way around, if it were not for the assumed monopolistic relation to reality of a knowledge disconnected from organic life, reference to action would cease to be a distorting, or even a limiting, term with respect to knowledge. The reference would be wholly explanatory and clarifying. Just as complications attaching to the questions of the relation of mind and body, or the self and its stream of mental states, are disentangled, and the elements in question fall into ordered perspective when viewed from the standpoint of the growth of an intelligently effective action, so with the other questions of philosophy.

It is high time, however, to make a transition from these general considerations to the special problems to which they are relevant. In this paper, I propose to deal with their bearing upon the topic of perception. Before directly attacking it, I must, however, introduce some further general considerations in order to make clear the bearing of what has been said upon what is to follow. Take the matter purely hypothetically. Imagine a philosophy which is convinced that the peculiarities of perception remain opaque, defying genuine analysis, as long as perception is regarded as a mode of theoretical cognition, while they become luminous with significance when it is treated as a factor in organic action. Imagine also that this conviction is conjoined with a belief that there is something in the nature of organic action marking it off so definitely from the truly real, that the latter must be known by a radically heterogeneous operation. Imagine that in the further course of the discussion the dualism in reality presupposed in this mode of treatment threatens to break out, and to break down the account. What is likely to happen? Are we not likely to find, at first, a sharpening of the antithesis between the special topic under consideration (whether it be perception, space, quantity, matter) and pure knowledge and genuine reality; and then, as the metaphysical consequences of this dualism come to view, a toning down of the antithesis between the two, by means of the introduction into each of reconciling traits that approximate each to the other? And surely this is one of the marked traits of the Bergsonian procedure. Suppose, however, we had commenced, not with the view that is afterwards corrected, but with the corrected view. Would not then the special analysis of the

specific topic (perception or whatever) have assumed a very different form from that in which it is actually found? And is it not *a priori* likely that the original account will not be found quite consistent even in its own nominal sense? Is it not likely that there will be already present in it elements that, inconsistent with the notion of the sheer opposition of useful action and reality, point to the correction to be later made?

I have asked the above questions not because I expect the reader to answer them, much less because I expect in advance an affirmative answer, but to put the reader in possession at the outset of the point of view from which the following criticism of Bergson's account of perception is written, and, in outline, of the technic of its method. As has been sufficiently intimated, I shall not question his main thesis: the description of perception as a factor in organic action. Neither shall I be called upon to question the specific terms in and by which he carries on this description: the central nature of indeterminate possibilities and the preoccupation of perception with the physical environment, not with mental states. My point is rather that so far as these traits receive due development we are carried to a conclusion where reference to useful action ceases to mark an invidious contrast with reality, and, accordingly, indicates a standpoint from which the need of any rival mode of knowledge, called philosophical, becomes doubtful.

It is not enough to say that perception is relative to action: one needs to know *how* it is relative, and one needs to know the distinguishing traits of action. And so far as Bergson's account makes perception relative to action, that is, makes knowledge qualified by possibilities (by freedom), and *useful* in affording an efficient development of free action, we are taken where the antithetical dualisms of space and time, matter and spirit, action and intuition have no belonging. Let the reader recall the honorific use of "life" in Bergson and his depreciatory use of "action," and decide whether the following sentence (the most emphatic one that I have found in his writings in the sense just indicated) does not break down the barriers supposed to exist between action and life, and connect perception with an action which is naught but the process of life itself. "Restore, on the contrary, the true character of perception; recognize in pure perception a system of nascent acts which plunges roots deep into the real; and at once perception is seen to be radically distinct from recollection; the reality of things is no more connected or reconstructed, but touched, penetrated, lived."[1]

[1] "Matter and Memory," English translation, pages 74–75. The significance of the passage stands out the more if one calls to mind that, from the other standpoint, recollection is the index of the real, of time and spirit, while perception, since connected with action, is tied down to space and matter.

Place in contrast with this sentence such statements as the following: "My conscious perception has an entirely practical destination, it simply indicates, in the aggregate of things, that which interests my possible action upon them";[2] and this: "When we pass from pure perception to memory, we definitely abandon matter for spirit."[3] Must not such a view of perception flow from quite another analysis, or at least from another emphasis, from that which yields the conception that in perception we *live* reality itself? I have finally reached a point where I can state what seems to me to be a specific oscillation between inconsistent views in Bergson's account of perception, while it will also be evident, I hope, that the discussion of this oscillation is not a picayune attempt to convict a great writer of a mere technical inconsistency, but involves the whole question of the validity of the knowledge that is connected with action, and of the need in metaphysics of another kind of knowledge. One view of perception implicates indeterminate possibilities (and hence time, freedom, life) in the quality of its operation, subject-matter, and organ; the other regards indeterminate possibilities as conditions *sine qua non* of the act, but not as qualifying either its nature as an act or that of its subject-matter. Our long introduction is now at an end. We come to the details of Bergson's account of perception.

I

Perception, according to Bergson, must be approached as a problem of selection and elimination, not as one of enhancement and addition. If there were more in the conscious perception of the object than in its presence, the problem of the passage from the latter to the former would be wrapped in impenetrable mystery. Not so, if its perception means less than its presence, since all that is then required is to discover the condition that might lead to the abandoning by the unperceived object of some of its entire being.[4] In the search for this condition, we begin by noting the trait characteristic of the existence of the subject in its entirety. Since the physical world is always a scene of complete transmitting, by equal and opposite reactions, of energy, it follows that "in one sense we might say that the perception of any unconscious material point whatever, in all its instantaneousness, is infinitely greater and more complete than ours, since this point gathers and transmits the influences of all the points of the material universe."[5] Anything, accordingly, that would eliminate some of the transmitting power of some part of the

[2] *Ibid.*, page 306.
[3] *Ibid.*, page 313.
[4] *Ibid.*, page 27.
[5] *Ibid.*, page 30.

total physical system would throw the phases of this blocked part into contrast with the rest of the system, and thereby into a kind of relief equivalent to its perception. Introduce a living body, with its special interests, and this is just what happens. The activity of the organism allows all influences, all movements, that have no interest for it, to pass immediately through it. With respect to them it is a neutral transmitter like any other part of the total system. But those movements that are of concern to it are singled out, disengaged.[6] They are held up, as it were, as a highwayman holds up his intended victim preparatory to exercising upon him the function of robbery that defines a highwayman. This arrest and detachment throws the traits of the things with which it is concerned into relief: they are perceived. From this interpretation of perception are derived its main traits. It is concerned directly with physical things, no mental states intervening; the perceived objects are arranged about our body as their center; they vary with changes of the body; the extent of the field perceived increases with growth in the variety and scope of our organic interests. Above all, perception is primarily a fact of action, not of cognition.

In making this summary I have tried to leave out of account considerations which would tell one way or another as respects the double analysis of perception to which I referred above, making my account as neutral as may be. The account must now be complicated by referring to the considerations slurred over. In the first place, the fact must be emphasized that in Bergson's professed view (that which leads in the end to invidious contrast with true knowledge of reality) the change from the total world to the perceived part is merely quantitative; it is *merely* a diminution, a subtraction. The relation is just and only that of part and whole. "There is nothing positive here, nothing added to the image [object], nothing new. The objects merely abandon something of their real action."[7] Perception "creates nothing; its office, on the contrary, is to eliminate from the totality of images [objects] all those on which I can have no hold, and then, from each of those which I can retain, all that does not concern the needs of the image [object] which I call my body."[8] This notion of sheer diminution and elimination of most of the parts and aspects of a whole supplies the official definition of pure perception: "a vision of matter both immediate and instantaneous;[9] an uninterrupted series of instantaneous visions, which would be a part of things rather than of ourselves."[10]

[6] *Ibid.*, pages 28–29.

[7] *Ibid.*, page 30. The omitted half of the last sentence will be noted later.

[8] *Ibid.*, page 304.

[9] *Ibid.*, page 26.

[10] *Ibid.*, page 69. The reader familiar with the doctrine of space and time

The position that seems inconsistent with this one might be arrived at deductively from the stress laid, in the definition of perception, upon indeterminateness of action: upon the operative presence of genuine possibilities. Consider such a statement as the following: "Is not the growing richness of this perception likely to symbolize the wider range of indetermination left to the choice of the living being in its conduct with things? Let us start, then, from this indetermination as from the true principle, and try whether we can not deduce from it the possibility and even the necessity, of conscious perception. . . . The more immediate the reaction is compelled to be, the more must perception resemble a mere contact; and the complete process of perception and of reaction can then hardly be distinguished from a mechanical impulsion followed by a necessary movement. But in the measure that the reaction becomes more uncertain, and allows more room for suspense, does the distance increase at which the animal is sensible of the action of that which interests it. . . . The degree of independence of which a living being is master, or, as we shall say, the zone of indetermination which surrounds its activity, allows, then, of an *a priori* estimate of the number and distance of the things with which it is in relation. . . . So that we can formulate this law: *perception is master of space in the exact measure in which action is master of time.*"[11] The passage is quoted because of its statement of the central position of indeterminate action. The explicit reference (in the last sentence) to time *suggests* what I regard as the true doctrine, but a careful reading shows that this reference can not be taken as an assertion of that conclusion. On the contrary, Bergson evidently means that the indeterminateness only acts as a sort of negative condition, a condition *sine qua non,* to throw into relief those objects which have a possible concern for the indeterminate action. As he says elsewhere, it operates "to filter through us that action of external things which is real, in order to arrest and retain that which is virtual."[12] Again the effect is spoken of as one of disassociation, of disengaging.[13] The objects "detach from themselves that which we have arrested on the way, that which we are capable of influencing."[14] He speaks of indetermination acting as a sort of mirror which brings about an

in Bergson does not need to be reminded that perception as an *instantaneous* section (non-temporal, non-durational) in an instantaneously complete field inevitably aligns perception with matter to the exclusion of time, mind, and reality as it would be envisaged from within.

[11] "Matter and Memory," pages 21, 22, 23. It is perhaps superfluous to multiply references, but see also pages 28, 29, 35, 37, 67, 68.

[12] *Ibid.*, page 309.

[13] *Ibid.*, page 41.

[14] *Ibid.*, page 29.

apparent reflection of surrounding objects upon themselves.[15] Again, the body "indicates the parts and aspects of matter on which we can lay hold: our perception which exactly measures our virtual action on things thus limits itself to the objects which actually influence our organs and prepare our movements."[16]

All such statements but emphasize the doctrine of mere subtraction, of diminution, as the essence of the act of perception. And if I now quote some passages which seem to have a contrary sense, it is not because I attach any great importance to what may be casual verbal inconsistencies, but because the passages bring to the front a contrasting notion of the facts themselves. The part of the sentence that was omitted in our earlier quotation after saying that objects merely abandon something of their real action "in order to manifest their virtual action" reads: "that is, in the main *the eventual action of the living being upon them.*" (Italics mine.) To the same effect he says (p. 59) around my body "is grouped the representation, *i. e.*, its [the body's] *eventual* influence upon the others [objects]." So (p. 68) perception is said to "express and measure the power of action in the living being, the indetermination of the movement or of the action *which will follow upon the receipt of the stimulus.*" (Italics mine.) Again, "perception consists in detaching, from the totality of objects, the possible action of my body from them." Most significant of all, perhaps, is the following: "Perception, understood, as we understand it, measures *our possible action upon things, and thereby, inversely, the possible action of things upon us.*"[17]

As I have just said, I shall try not to attach undue importance to the mere wording of these passages. It is easy to substitute for the phrase, "bodies upon which we may act," the other phrase, "our possible action upon bodies," and yet *mean* the same thing, verbally opposed as are the two phrases, especially as the idea that perception "measures" our possible action upon things seems to afford a connecting link. But the verbal opposition may be used to suggest that there follows from Bergson's theory of the dependence of perception upon indeterminateness quite another view of the perceived subject-matter than that of quantitative elimination. If we allow our mind to play freely with the conception that perceived objects present our *eventual* action upon the world, or designate our possible actions upon the environment, we are brought to a notion of complication, of qualitative alteration. For the only way in which objects could

[15] *Ibid.*, pages 29 and 46.

[16] *Ibid.*, page 232. Compare "It eliminates from the totality of objects all those on which I can have no hold." *Ibid.*, page 304.

[17] *Ibid.*, page 57. Italics mine.

conceivably designate our future actions would be by holding up to view the objective effects of those actions; that is to say, presenting the prior environment as it will be when modified by our reactions upon it. Perception would then be anticipatory, prognostic; it would exhibit to us in advance the consequences of our possible actions. It would thereby facilitate a choice as respects them, since the act of appreciating in advance the consequences that are to accrue from incipient activities would surely affect our final action.

So far as the *subject-matter* of perception is concerned, we are led to substitute for a material cut out from an instantaneous field, a material that designates the effects of our possible actions. *What* we perceive, in other words, is not just the material upon which we *may* act, but material which reflects back to us the consequences of our acting upon it this way or that. So far as the *act* of perception is concerned, we are led to substitute an act of choosing for an act of accomplished choice. Perception is not an instantaneous act of carving out a field through suppressing its real influences and permitting its virtual ones to show, but is a process of determining the indeterminate.

So far we have, however, simply two contrasting positions placed side by side. What are the grounds for preferring one view to the other? I shall first take up the formal or dialectic analysis of the elements of the situation as Bergson describes them, and then consider his account of perception as choice, closing with his account of the place of the brain in the act of perception.

II

I think it can be shown that the idea of perception as bare instantaneous outstanding of part of an instantaneous larger world is supported only by a rapid alternation between the two conceptions of real and of possible action; and that the moment we hold these two conceptions together in a way that will meet the requirements of the situation we are bound to pass over to the other idea of perception, the one involving a qualitative change of antecedents in the direction of their possible consequences.

The difficulty in Bergson's professed account may perhaps be suggested by the following passage: "If living beings are just centers of indetermination . . . we can conceive that their *mere presence* is equivalent to the suppression of all those parts of objects in which their functions find no interest."[18] But can we conceive anything of the kind, even if we allow our imagination the most generous leeway? We seem to be caught in a dilemma. Either the living bodies

[18] *Ibid.*, page 28. Italics mine.

are engaged in *no* action, are *merely* present; or else they are really acting. If the former is the case, then no influence is exercised upon the environment, not even a suppressive or relinquishing one. If the latter, the action must modify the bodies upon which it is exercised. We get either less or more than abandonment. Does it not seem *a priori* probable that the idea of perception as the outcome of a sort of purely negative action is but a half-way station between the notion of no perception at all and of perception as an environment modified through a characteristic response of the living body? For we *can* conceive that some act of the organism in accord with its peculiar interests, some gesture, or active attitude, might *accentuate* the parts of the world upon which the organism is interested to act, and that this stress might be equivalent to their perception.

Perhaps, however, our hard and fast dilemma is due to our ignoring just the points upon which Bergson insists: indeterminateness and possibilities. But the dilemma appears to repeat itself. Are the possible actions of the organism *merely* possible? Even if we admit (what seems to me inadmissible) that *mere* potentiality is an intelligible conception, we are still far from seeing how it could exercise even a suppressive influence. But if possible activities mean (as it seems to me they must mean to have a meaning) a peculiar quality of real actions, then we get real influence indeed, but something more and other than sheer elimination and suppression. If we look at it from the side of indetermination, the logic is not changed. Either indetermination and uncertainty mean a qualitatively new type of action, or they mean the total absence of action.

Perhaps I can now make clearer what I meant by Bergson's alternation between real and possible action. The act of carving out a portion of the entire field must be a real act. It is complete at one stroke, all at once. This by itself gives a sheer quantitative limitation. But this act of eliminative selection is still to be accounted for. So we have recourse to the presence of possible actions. What is let go is that upon which the organism can not possibly act; what is held to is that upon which it can act. Bergson thus strings the two conceptions one after the other in this way: *Logically,* possibility antecedes (that is, implies and requires) an act of selection; *really,* the act of selection precedes the actualization of possible actions, furnishing the field upon which they are to operate. Bergson seems to vibrate between the real action of possibilities, and the possible action of real (but future) actualities. The former designates an act that is, however, more than instantaneous, that is a process; and that does more than cut out, that qualifies the material upon which it operates, so as to prepare the way for a subsequent action.

The latter expresses something that will be instantaneous when it comes and that may be conceived (perhaps) as having only an effect of diminution, but that, unfortunately, is not present to have any effect at all, save as, to meet the requirements of the situation, it suddenly changes to a present real action of possibilities, that is, to a distinctive *quality* of selective action. The same dialectic operates (as we shall shortly see) upon the side of the environment. On the one hand, the perceived subject-matter indicates *possible* action upon the organism, something which has been acquired in the act of perception. But on the other hand, as the perceived subject-matter is an instantaneous section out of a homogeneous totality, any possibilities which the subject-matter can present must have been already in its possession. But as this contradicts the notion of complete presence, we are again forced to the conception of possibility as something conferred by the organism.

Bergson seems to recognize that the bare inoperative presence of potentialities (the conception which seems to provide a middle term between possible future real actions and present real action of possibilities) will not, after all, suffice to account even for a diminution of the physical environment. We somehow *arrest* the influences proceeding from those bodies that we are capable of acting upon. This act of arrest receives some positive characterization in the following passage. After stating that physical bodies act and react mutually by all their elements, he goes on to say: "Suppose, on the contrary, that they encounter somewhere a certain spontaneity of reaction: their action is in so diminished, and this diminution of their action is just the representation which we have of them."[19] Here we have the most explicit statement that I have been able to find of the *modus operandi* of the act of suppression. It is treated as a real act, and in so far meets the necessities of the case, while at the same time spontaneity is suggestive of possibilities. We will admit, without caviling, that spontaneity of action describes a peculiar type of action, one which, instead of following the physical principle of equal and opposite reaction, merely diminishes the real efficacy of the influences that it encounters. But even so, we have only a *real* action of a peculiar unusual sort in this reduction of the efficacy of the objects. If, however, spontaneity means that the organic act is already charged with potentiality, its manifestation might *convert* the energy of the environment into a form that would involve the inhibition, for the time being, of its usual physical mode of efficacy. But suppression *through conversion into a different form* is a radically different thing from suppression by mere diminution. This latter might, by lowering the resistance that it would otherwise

[19] *Ibid.*, page 29.

encounter, give a better chance for some subsequent organic activity to express itself, but this would be the limit of its significance. Such a state of affairs would involve no indetermination, and there is no sense in calling the subsequent action a possible action. It is simply a postponed action, bound to occur if the spontaneous action intervenes. It is simply the real future action of which we have spoken. In short, it does not fulfill the conditions for the emergence of the unperceived into the perceived.

Upon occasion, however, Bergson states the situation differently. As stated in a passage already quoted, we allow "to filter through us that action of external things which is real, in order to arrest and retain that which is virtual: this virtual action of things upon our body and of our body is our perception itself.[20] I pass over the question of how this view is to be reconciled with the statements to the effect that perception "limits itself to the objects which *actually influence our organs* and prepare our movements." The point to notice is that virtual or potential action is transferred from our body and made a property of the objects, the peculiarity of our action now being that it isolates this property of the objects. This point of view is even more explicit in such a statement as the following: "Representation is there (that is, in the universe), but always virtual—being neutralized at the very moment when it might become actual, by the obligation to continue itself and to lose itself in something else. To obtain the conversion from the virtual to the actual it would be necessary, not to throw more light upon the object, but on the contrary to obscure some of its aspects, to diminish it by the greater part of itself, so that the remainder, instead of being encased in its surroundings as a *thing*, should detach itself from them as a *picture.*"[21] The extraordinary nature of this passage stands out if we recall that the express definition of the physical is complete actuality, total lack of virtuality. Even more significant, however, than this contradiction is, for our present problem, the complete shift of the point of view. Potentiality to begin with was wholly on the side of the living being, just as actuality was the essence of the world. But since any act of elimination, of diminution, affected by the living being would obviously be a real act of a certain kind, the exigencies of the logic require that potentiality be attributed to the object, the real action of the organic being now treated merely as an occasion for the display of this potentiality. But whenever the exigencies of the argument require reference to the indeterminateness of the action of *living* beings, to mark them off from non-living

[20] *Ibid.*, page 309.
[21] *Ibid.*, page 28.

things, potentiality retires from the object to take up again its exclusive residence in the living being.[22]

Quite likely the reader has been brought to a feeling that we are not any longer considering perception at all, but are engaged simply in performing dialectic variations on the themes of actuality and possibility, indeterminateness and determinateness. Let us then attempt to translate the conceptions over into their factual equivalents. I think that the essential of Bergson's view may be correctly stated about as follows: The indeterminateness of the action of a living being serves to delay its motor responses. This delay gives room for deliberation and choice. It supplies the opportunity for the conscious selection of a determinate choice—for freedom of action. But the delay of motor response also signifies something from the standpoint of the world: namely, a division within it. Certain of its movements are still continued through and beyond the organism; with respect to them, there is no delaying response. Consequently those other movements of the world to which response is postponed are sundered; they are thrown into relief, cut out. Moreover, it will be noted that the material that thus stands out presents just those movements upon which the possible, or postponed, responses of the organism may take effect. Material thus cut out and having such reference to subsequent organic actions constitutes pure perception.

[22] It is worth considering whether this dialectic does not throw light upon Bergson's panpsychic idealism. It seems as if his final attribution of panpsychic quality to matter were simply a generalization, once for all, of the circular logic we have just noticed. If (*a*) we define perception as a conscious representation on the basis of potentiality, and then (*b*) fall back on the inherent potentiality of the universe to account for the diminution of the field characteristic of the conscious representation, it follows as matter of course that the universe itself is already consciousness of some sort (*cf.* page 313). "No doubt also the material universe itself, defined as the totality of images, is a kind of consciousness, a consciousness in which everything compensates and neutralizes everything else, a consciousness of which all the potential parts, balancing each other by a reaction which is always equal to the action, reciprocally hinder each other from standing out." Here we have, I think, the key to his entire treatment. Let anything throw the whole out of balance, and a piece of this total consciousness stands out. The cut-out portion is a *conscious* representation just because the whole from which it is cut is conscious. But why is the whole called consciousness? Simply because perception is conscious and perception is a part cut out from a homogeneous whole. But there must be something to effect the cutting out; the whole does not cut itself up. Hence the need of referring to the differential presence of the organism as a center of indeterminate possibilities. But to stay by this standpoint would connect all the eulogistic traits that are employed in designating philosophic intuition with crises of organic activity. Hence potentiality and freedom are transferred back to the whole, which accordingly makes matter into consciousness once more.

The ingenuity of this account is indubitable. For my own part, I think it gives the elements of a true account. But it is possible to arrange these elements quite differently and thereby reach quite a different result. The revised account reads somewhat like this. External movements are involved in the activities of an organism. If and in so far as these activities are indeterminate, there is neither a total, or adequate stimulus in the movements, nor an adequate total response by the organism. Adequate stimulation and adequate response are both delayed (the delay is an effect, not a cause or condition, as it seems to be in Bergson's account). The partial responses, however, are neither merely dispersed miscellaneously upon the environment, nor are they merely possible. They are directed upon the partial stimuli so as to *convert* them into a single coordinated stimulus. Then a total response of the organism follows. This functional transformation of the environment under conditions of uncertain action into conditions for determining an appropriate organic response constitutes perception.

What is the difference between the two views? According to the first, perception *is* a stimulus, ready-made and complete. According to the second, it is the operation of *constituting* a stimulus. According to the first, the object or given stimulus merely sets a problem, a question, and the process of finding its appropriate answer or response resides wholly with the organism. According to the second, the stimulus or perceived object is a part of the process of determining the response; nay, in its growing completeness, it is the determining of the response. As soon as an integral and clear-cut object stands out, then the response is decided, and the only intelligent way of choosing the response is by forming its stimulus. Meantime organic responses have not been postponed; a variety of them are going on, by means of which the environing conditions are given the status of a stimulus. The change effected in the environment by the final total organic act is just a consummation of the partial changes effected all through the process of perception by the partial reactions that finally determine a clear-cut object of perception. This means that the perceived subject-matter at every point indicates a response that *has* taken effect with reference to its character in determining *further* response. It exhibits what the organism *has* done, but exhibits it with the qualities that attach to it as part of the process of determining what the organism is *to do*. If at any point we let go of the thread of the process of the organism's determining its own eventual total response through determining the stimulus to that response by a series of partial responses, we are lost.

III

We have now to consider the same situation, but this time from the standpoint of the act of choice concerned in it. Our previous discussion prepares us for the points at issue. We may anticipate an alternation between two conceptions, introducing into a choice alleged to be complete in an instantaneous act, traits which belong to a choice among future possible acts. The circular reasoning will disappear, we may also anticipate, as soon as substituted for the alternation between a present choice and a future choice, each of which owes its character to the other, a temporal act of choice, that is, a *choosing*.

Bergson's nominal theory is that the selective elimination is itself a choice. "Our consciousness only attains to certain parts and certain aspects of those parts. Consciousness—in regard to external perception—consists in just this choice."[23] Such a choice seems, however, exactly like a "choice" exhibited in the selective or differential reaction of a metal to an acid. The metal also "picks out" the form of energy upon which it can act and which can act upon it.[24] Permit, however, the phrase to pass as a metaphor; or permit, if you will, the metaphor to pass as a fact. There is here no indetermination of any kind; nothing undecided and no need of any subsequent choosing. The choice being complete, the reaction of the organism

[23] *Ibid.*, page 31; *cf.* page 304: "Perception appears as only a choice."

[24] Considerations of space compel me to omit many matters of interest which are relevant to the topic. But I can not forbear here a word of reference to Bergson's earlier mode of statement of the point at issue between idealism and realism. The reader will recall that he sets out from a statement of the two ways in which objects—called, for convenience, "images"—may vary. In one system each varies according to all the influences brought to bear upon it; in the other, all vary according to the action of *one privileged* object, the organic body. The former system describes the physical world; the latter, the perceived world. But *some* of his descriptions of the peculiarities of the latter surely refer as well to the traits of the former. Thus "I note that the size, shape, even the color of external objects is modified according as my body approaches or recedes from them; that the strength of an odor, the intensity of a sound, increases or decreases with distance" (page 6). Surely, however, the intensity of an influence exercised by any physical body upon another physical body varies with distance. Shape and size, regarded as the angular portion of the total field subtended, vary with distance in the same physical way; so does color with the change in intensity of light effected by distance. Thus choice, as here defined, is only a name for the *specific* action one body exercises upon others. But in his final formula is stated the *peculiar* kind of a change in the physical system effected by the organic body in perception: things not merely change with its changes, but change so as to reflect its "*eventual* action" (p. 13). Here, indeed, is a genuine criterion of distinction; and our further discussion of choice is simply a development of the consequences of introducing reference to *eventual* action into its nature.

follows at once, or as soon as its time comes. But now there enters upon the scene a present effect attributed to future possible actions. There are many possible acts lying in wait. Otherwise the choice, the relinquishing and the standing out, would not have occurred. Somehow, therefore, the perceived object sketches and measures the many possible acts among which a choice has to be made before a determinate response can occur. The circle is before us. The present complete choice makes possible a presentation of future possibilities; the future possible acts operate to define the peculiar nature of the present act.

The two sides are brought together in the consideration that the perceived object reflects or mirrors our state of suspense, of hesitation, the conditions with respect to which we have to choose. It is unnecessary to go over the ground already traversed; if I have not succeeded in laying bare the circular reason nothing I can add now will be of any avail. But we may note two consequences applicable to the situation as it takes form with respect to choice. Since the unperceived world is, by definition, one that is completely actual in itself—since, in other words, the world as physical already has its mind all made up—this view implies the introduction into the perceived world of a quality contradictory to the conception of a mere quantitative selection. Choice, even though instantaneously complete choice, has done something positive after all. But of greater moment is the fact that a subject-matter of perception that merely mirrors our own hesitation is of no use in resolving that hesitation. If we insist upon looking at it as marking a choice, the choice is simply to be undecided as to a choice. The perceived object just gives back to us, indifferently, sullenly, uninstructively, our own need of a choice. Such a perception could never participate in the "office of *ensuring our effective action* on the object present."[25] Our later choice among possible actions will then be as blind and random as if perception had never intervened. What is the likelihood of an act so chosen being effective, appropriate? Better had it been to have remained in the frying-pan of complete mechanism than to have jumped into the fire of purely random action.[26]

[25] *Ibid.*, page 84. Italics mine. In its context the quotation refers to the rôle of the cerebral mechanism in perception, but, by hypothesis, it must be capable of transfer, without injustice to the logic, to the perception as the chosen object.

[26] It may be objected that we have here ignored the distinction between pure and concrete perception and the need of memory to effect the change of the former into the latter, and thereby have treated the essence of the account of pure perception as if it were a difficulty in the account. Pure perception, we may be told, does present us with exactly the indeterminateness which reflects our own hesitation. It gives the field with respect to which choice has to be

Note how the difficulties disappear if we regard the act of perceiving as a temporal act, as *choosing*. Follow out literally the idea that our reactions *are uncertain*, not merely "allowing room for suspense," but *involving* suspense.[27]

Since any reactions that we actually make must, no matter how charged they are with uncertainty, modify the environment upon which they exercised,[28] we shall have as the counterpart of the act a field undergoing determination. So far as reactions are dominantly uncertain we shall expect, indeed, to find the subject-matter vague and confused—and we do so find it. But an indefinite reaction may have a certain focusing that will further define its subject-matter so that it will afford the stimulus to a more effective subsequent response, and so on till the perceived matter gets outline and clear-

made. It sets a question to which the motor response has to find a reply (see, for example, page 41). What guides the motor response in finding the reply is not perception but memory. "Though the function of living bodies is to receive stimulations in order to elaborate them into unforseen reactions, still the choice of the reaction can not be the work of chance. This choice is likely to be inspired by *past experience*, and the reaction does not take place without an appeal to the *memories* which analogous situations may have left behind them. The indetermination of acts to be accomplished requires, then, if it is not to be confounded with pure caprice, the *preservation* of the images perceived" (page 69, italics mine; see also pages 103 and 114). I have no doubt that this quotation represents Bergson's view; perception puts the question, and only puts the question; memory helps the motor response to find the effective and appropriate answer. Even though my whole argument seems left hanging in the air with its underpinning knocked out, I must postpone consideration of this point of view till an explicit discussion of memory is undertaken. But certain indications may be suggested at this point. The assumption leaves totally unexplained the sudden transformation of a physical world totally devoid of virtuality (see pages 80 and and 81 for the statement that if the physical world had virtuality it might be the cause of consciousness) into a world that is as perceived nothing but potentialities. Matter as perceived is now pure freedom; mind as memory is pure determination. But more significant to the present problem is the recognition that action based on pure perception is a matter of "chance," of "pure caprice." If such be the case, how can the object of pure perception provide any clew to the recall of the proper memory? Why is not that a work of chance, of caprice? But most significant of all is the preestablished harmony set up between perception and memory, space and time, matter and mind, by this view that perception sets the problem to which an alleged radically different power uniquely supplies the answer. For like all preestablished harmonies it testifies to the probability of a prior artificial separation.

[27] *Ibid.*, page 22.

[28] It will be interesting to watch the logic of those neo-realists who connect the act of perception with the organism instead of with "consciousness" when they develop their views in detail. Professor Montague's theory of potential energy as the physical side of consciousness seems to avoid the snares, but if I mistake not, potential energy which is all located at one spot instead of marking a stress in a larger field alleges an unprecedented physical fact.

ness. If, however, the reactions continue wholly and only indeterminate, the confusion of the subject-matter will remain, and, correspondingly, the indeterminateness of response will persist. The only perception that can be a useful part of the act of choosing a useful response will be one that exhibits the effects of responses already performed in such a way as to provide continuously improving stimuli for subsequent responses. The only way in which a living being with indeterminate possibilities of action can be intelligently helped to their determination by perceived objects is by having perceived objects serve as anticipations of the consequences of the realization of this or that possibility. And only through a presentation in anticipation of the objective consequences of a possible action could an organism be guided to a choice of actions that would be anything except either mechanical or purely arbitrary. Perception can prepare our further movements effectively and appropriately in the degree in which it continuously provides the stimuli for them. In words of Bergson's own which can not be bettered: "That which constitutes our pure perception is our dawning action, in so far as it is prefigured in those images [namely, objects]. The *actuality* of our perception thus lies in its *activity*, in the movements which prolong it."[29] Take this passage seriously and literally, and you have the precise view of perception here contended for. It is not a choice accomplished all at once, but is a process of choosing. The possible responses involved are not merely postponed, but are operative in the quality of present sensori-motor responses. The perceived subject-matter is not simply a manifestation of conditions antecedent to the organic responses, but is their transformation in the direction of further action.

IV

In the references which we have made in this discussion to sensori-motor responses we have already implicitly trenched upon our last topic: the body, as implicated in perception. Just what part does the brain have, in the act of perception? The reader need not be reminded how central is this aspect of the matter for Bergson. From one standpoint, his entire discussion of perception is intended as a demonstration that the brain is not the cause of conscious representations, but is, and is solely, the organ of a certain kind of action. The undoubted correspondence between the *facts* of the subject-matter of perception (the conscious representations) and brain events is to be explained, not by invoking materialism or psycho-physical parallelism (both of which depend upon regarding perception as a case of knowledge instead of action), but by showing

[29] *Ibid.*, page 84. Italics in the original.

that both the conscious representations and the brain states are functions of nascent or potential action. The "representations" designate action on the side of its material, the environing conditions; the brain movements designate it on the side of the organs intimately involved in it.[30] The correspondence is that of material and tool of action, like that of soil and plow with reference to the act of sowing seed.

The reader is invited to traverse the field for a third and last time. We have, once more, to see how Bergson provides all the factors of an adequate statement; how he places them in temporal alternation to each other and thereby renders them incapable of performing the office attributed to them; and how the account stands when it is corrected by making the factors of actuality and indeterminateness contemporaneous instead of successive.

The nervous system, being a physical structure, is a medium of the transmission of movements, and is only that. Consequently any correspondence or correlation that can be made out between the brain processes and the object of conscious perception (the so-called conscious content or representation) must be in terms of correspondence of modes of movement. The nervous process concerned in the act of perception must be describable, in other words, in a way analogous to the peculiar type of action that is exhibited in the perceived object. The marks that distinguish cortical action from the so-called reflex action of the lower structures furnish the clew. In the latter, the incoming movement is shunted at once into a return movement. In the former the paths of communication are immensely multiplied and the nature of transmission correspondingly complicated. The same incoming stimulus has many outgoing paths open to it. Thus the brain has a double office. On the one hand, it provides a mechanism by which peripheral disturbance, upon reaching the spinal cord instead of being deflected into its immediate reflex track, may be put in flexible connection with other motor mechanisms of the cord. The cortical cells termed sensory "allow the stimulation received to reach *at will* this or that motor mechanism of the spinal cord, and *so to choose* its effect." "On the other hand, as a great multitude of motor tracks can open simultaneously in this substance to one and the same excitation from the periphery, this disturbance may subdivide to any extent, and consequently dissipate itself in innumerable motor reactions which are merely nascent. Hence the office of the brain is sometimes to conduct the movement received to a *chosen* organ of reaction, and sometimes to open to this movement the totality of the motor tracks,

[30] *Ibid.*, pages 35, 309.

so that it may manifest there all the potential reactions with which it is charged, and may divide and so disperse. . . . The nervous elements. . . do but indicate a number of possible actions at once, or organize one of them.''[31]

With respect to the matter under discussion, the significant element is the statement that *sometimes* the brain has one office—allowing a *chosen* reaction to proceed; and *sometimes* another office —to permit its dispersal into a number of channels. The same duality is repeated in the statement that the brain indicates a number of possible reactions *or* organizes one of them. The alternation already considered here presents itself overtly and externally. And the dilemma is presented in an equally definite way. So far as there is choice, organization of a fixed path, there is just a single actual response. So far as there is dispersal in many paths, there are many actual responses. In neither case does possibility, or choice among possibilities, show its face. At the same time, there is indicated the true state of affairs: the brain expresses the operation of organizing one mode of total response *out of* a number of conflicting and partial responses.

We can of course imagine that the dispersal of energy among many paths is so extensive as to be equivalent to a practical inhibition, for the time being, of any definite action upon the environment. For the time being, the expenditure of energy (barring what leaks through) is intra-organic, or even, anticipating the dispersion into sensori-motor tracks to be mentioned shortly, intracerebral. We might identify this temporary inhibition of overt response with the gap in the instantaneously completed transmission which throws part of the material world into relief. But this identification proves too much. If the dispersal is into *motor* tracks, these discharges are just so *many* overt and disconnected acts in an incipient or nascent condition.[32] They are not the incipiency of one *appropriate* act. No provision is made, none is suggested, for recalling them so that in place of the multitude of dispersive tendencies there may be one concentrated act. With reference to the performance of this one act—that alone could meet any need of life—these dispersive activities are just so much waste energy. They sketch, not what we are going to do, but what we *are* doing futilely.

The single path opened may, however, be said to represent a choice of the effect to be attained if it is regarded as a process of coordinating, for greater efficiency, a number of competing partial tendencies. Similarly, these tendencies may be said to represent possible incipi-

[31] *Ibid.*, page 20.

[32] Compare what was said earlier about the reality of future acts, page 655, above.

ent acts (possible paths of choice) if they are brought into contemporary, not alternating, connection with seeking and finding the single most effective line of discharge. Completely real and really complete just as they are when their dispersive character is isolated, they are incipient acts with reference to a unity of organic attitude which they take part in establishing.

The method of realization of the contemporary relation of discovering a unified response to a mutitude of dispersive tendencies is incidentally mentioned in Bergson's allusion to the intervention of the "cortical cells termed sensory." All direct motor shunting, whether unified or dispersive, is of the reflex type. Only because of the complication of a situation by the continuation of an incoming stimulus to *sensori*-motor areas in intricate interconnection with one another, can there be that suspension and choosing which constitute the act of perception. This act is as genuinely motor as eating, walking, driving a nail, or firing combustibles, and involves a like change in the environment upon which it takes effect.[33] But its motor peculiarity is that it takes effect not in such acts as eating, walking, driving, firing, but in such acts as tasting, seeing, touching. The motor response, as long as the act of perception is continued, is directed to *moving* the sense-organs so as to secure and perfect a stimulus for a complete organic readjustment—an attitude of the organism as a whole. This is made possible precisely in so far as the incoming disturbance is "dispersed" not into motor tracks, but into *sensori*-motor areas.[34] In the reciprocal interactions of these sensori-motor areas (their reciprocal stimulation of one another) is found the mechanism of coordinating a number of present but ineffectual motor tendencies into an effective but future response.

Let us suppose the disturbance reaches the brain by way of the visual organ. If directly discharged back to the motor apparatus of the eyes this results not in a perception, but in an eye-movement. But simultaneously with this reaction there is also a dispersal into the areas connected with tasting, handling, and touching. Each of these structures also initiates an incidental reflex discharge. But this is

[33] Not, of course, that the act is, as such, a change of the *perception* (that would involve us in the *regressus ad infinitum* of which the neo-realists have rightly made so much), but that perception *is* the change of the environment effected by the motor phase.

[34] It is doubly significant that Bergson alludes to the sensory elements involved without in any way amplifying the allusion. The allusion is necessary in order to supply the basis for the uncertain character of the situation in which perception occurs, and for explanation of its inherent future reference. It is not amplified because the whole explanation of sensory features in Bergson's scheme is found in memory. "Memory" is thus again found implicated in the very heart of pure perception.

not all; there is also a cross-discharge between these cortical centers. No one of these partial motor discharges can become complete, and so dictate, as it were, the total direction of organic activity until it has been coordinated with the others. The fulfillment of, say, eating, depends upon a prior act of handling, this upon one of reaching, and this upon one of seeing; while the act of seeing necessary to stimulate the others to appropriate execution can not occur save as it, in turn, is duly stimulated by the other tendencies to action. Here is a state of inhibition. The various tendencies wait upon one another and they also get in one another's way. The sensori-motor apparatus provides not only the conditions of this circle, but also the way out of it.

How can this be? It is clear that if, under the condition supposed, the act of seeing were overtly complete it would *then* furnish the needed stimulus of reaching, this to handling and so on. The *sensory* aspect of the apparatus is, in its nature, a supplying of this condition. The excitation of the optical area introduces the *quality* of seeing connected (through the simultaneous excitation of the areas of reaching, tasting, and handling) with the specific *qualities* of the other acts. The *quality* of movement, or action, supplied by the sensory aspect, is, in effect, an anticipation of the result of the act when overtly performed. With respect to determining the needed stimulus, it is *as if* the overt responses in question had been actually executed.[35]

The reader may regard this account as speculative to any degree which he pleases. Personally I think it outlines the main features of the act of perceiving. But that is neither here nor there. The question is whether or no it furnishes the terms of an account which shall avoid the dilemma in which Bergson's account is held captive, while remaining true to the three requirements of his method of definition: namely, that the brain be treated as an organ for receiving and communicating motion; that indeterminateness be introduced as a specifying feature; that brain processes correspond to subject-matter perceived, as an organ of action corresponds to the material of its action.

Our analysis of Bergson's account is now completed. The reader will decide for himself how far we have been successful in showing that his professed account of perception depends upon alternation between two factors which, if they are involved at all, must operate contemporaneously, not alternately. He will judge for himself of the value of the account of perception obtained when these factors are treated as contemporaneously operative. I may however be pardoned

[35] Here we find the *modus operandi* presupposed in our account of perception as a process of obtaining, by partial reactions to partial stimuli, the determinate stimulus which will evoke a determinate response. See *ante*, p. 659.

for reminding him that if the argument has been successful in its two purposes, the traits that are alleged to demarcate perception and the objective material with which it deals from a reality marked by genuine presence of temporal considerations have disappeared. Perception is a temporal process: not merely in the sense that an act of perception takes time, but in the profounder sense that temporal considerations are implicated in it whether it be taken as an act or as subject-matter. If such be the case, Bergson's whole theory of time, of memory, of mind and of life as things inherently sundered from organic action needs revision.

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DISCUSSION

OPPOSITION AND THE SYLLOGISM

PROFESSOR DE LAGUNA sums up his discussion of the syllogism in the formula[1]

$$-[(S \cdot P) \cdot -(S \cdot -M) \cdot -(P \cdot M)].$$

According to a letter to the JOURNAL[2] he "learned the formula from another source" [than Mrs. Franklin's paper]. It may not be amiss to call attention to the fact that, whilst Mrs. Franklin's "inconsistent triad"[3] is valid, the above formula, whoever is responsible for it, is *invalid* if S, P, M denote *classes, i. e.*, in the case in which it ordinarily would be applied, the categorical syllogism. According to Professor de Laguna his formula expresses both the "general principles of the categorical and the hypothetical syllogism," "if we use letters to denote ambiguously either classes or propositions."[4] But, if the letters denote *classes* his formula does not represent any proposition whatever, but merely a *class*. This objection is not valid against Mrs. Franklin's proposition itself, nor against any of the familiar statements of it; *e. g.*,[5]

$$(a \bar{\vee} b)(\bar{b} \bar{\vee} c)(c \vee a) \bar{\vee}$$

is valid whether a, b, c, denote classes or propositions.

Professor De Laguna's failure to distinguish between class and proposition is perhaps to be explained by his intention to denote by

[1] This JOURNAL, Vol. IX., page 400.

[2] *Ibid.*, Vol. IX., page 588.

[3] According to Mrs. Franklin (this JOURNAL, Vol. IX., page 583) this name is due to Professor Royce.

[4] *Loc. cit.*, page 400.

[5] "Studies in Logic," by members of the Johns Hopkins University, page 40.

the minus sign in front of the bracket the denial of the existence of a class. And therewith I come to the second point. The use of the minus sign, which goes back to the beginnings of the algebra of logic, is itself unobjectionable; though it was abandoned by the writers of the latter part of the nineteenth century, its use, in a modified form, has been revived by Whitehead and Russell in their "Principia Mathematica." I object, not to the minus sign itself, but to the confusion of two distinct fundamental ideas which are both denoted here by the same symbol. In the same formula, if P denotes a class "$-P$" denotes here (1) the negative of P, and (2) the denial of the existence of P; *e. g.*, "no S non-M exists is symbolized by Professor De Laguna thus:

$$-[S \cdot -M]$$

where "$S \cdot -M$" is the product of two classes, and therefore itself a class!

Such ambiguous use is, of course, against the very first principles of any symbolism whatsoever.

Mrs. Franklin's classical formula is sufficient to adjudge all syllogisms. Any attempt to reduce the moods of the syllogism to the "principle of opposition" might be considered a barren undertaking. Not so! Even if useless, it would still be of theoretical interest and a novelty. But, alas! the claim of the paper that "we deduced the principle of the syllogism"[6] is not substantiated, except by a very loose and unwarrantable use of the word "deduce." The principle from which Professor De Laguna *really* deduced his "principle of the syllogism" is not his "principle of opposition" but Peirce's "Theorem I.," referred to in Mrs. Franklin's paper, or the rules of "inserting and dropping terms,"[7] to which Professor De Laguna refers as "two principles of immediate inference."[8] The proof of this last contention can not very well be given without the use of the "algebra of logic"; and in that form it is part of Mrs. Franklin's admirable paper.

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REVIEWS AND ABSTRACTS OF LITERATURE

Le Langage et la Verbomanie; Essai de Psychologie Morbide. OSSIP-LOURIÉ. Paris: Félix Alcan. 1912. Pp. 275.

This is a discursive treatise on the disease of talking too much. The author has previously written rather along literary than nosologic lines,

[6] *Loc. cit.*, page 400.

[7] Cf. "Studies in Logic," by members of the Johns Hopkins University, page 33.

[8] *Loc. cit.*, page 397.

and is one of those friends of the "Psychological Index" who write their names without initials. He is also a bit of a pessimist, even misogynist, to judge from the seventh chapter. He has some good ideas, which are entertainingly developed.

By way of introduction a fairly satisfactory account is given of the psychological processes to be supposed in the origin of language, the relation of language to thought, with a discussion of their lack of parallelism. The basal conception is of language as a delicate and complex mental function legitimately suited to particular social ends. To fail to limit it to its proper sphere in the psychic economy, putting it to loose and improper uses, is not without its dangers to the personality. The great emphasis laid hereon is the main characteristic of the volume. It is this which is termed "*verbomanie*," especially in the sense of an overdevelopment of the linguistic function. The psychiatrist would probably tend to regard these manifestations as symptomatic, but while the author occasionally uses the word in this sense, he seems more frequently to regard it as an independent disease, manifesting itself *par trop d'effets, complexes et contraires.* The clinical picture is consequently ill-defined, and probably includes many better-recognized disease forms that are partly characterized by disturbances—in the direction of hypertrophy—of the linguistic faculty. It is conceived of as an almost exclusively psychogenic condition, and doubtless justly so, so far as the content is concerned, though the symptoms of genuine *verbomanie* are scarcely so independent of originally unstable mental organization as the author seems to think.

The essential question is, then, if loose speaking, besides being a derivative of loose thinking, may not in turn react upon the intellectual faculty. Popularly, this is the opinion voiced in speaking of one carried away by his own eloquence. The clouding of adequate reaction by emotion is an elementary psychological principle, and in so far as the false use of language may arouse inappropriate emotional reactions, it may lead to inappropriate intellectual ones. The "argument by epithet" is well known politically, nor is the scientific investigator exempt from its pitfalls. A clever but suggestible worker, with a turn for rhetoric, may turn his own dialectics upon himself to the detriment of clear thinking. All this independently of a clinical conception of "*verbomanie*," of which the author has at least a clear enough idea to formulate a definite scheme for its management. In the matter of responsibility he places his verbomanias between the "insane" and the normal, not considering that society can guard itself against them, *mais elle peut les combattre moralement et socialement.* Prophylactically, he desires more training in the precise employment of speech. The idea of "learning by doing," expressed by so many who approach educational questions from a psychopathological angle, we meet again here in the words, "*La transmission purement verbale d'un savoir, au lieu d'infuser des energies aux auditeurs, les habitue à l'incapacité intellectuelle et à la phraselogie vide,*" and otherwise. Therapeutically, "disciplinary silence" is the key-word, and the author voices a suggestion singularly like one in the "Modern Utopia" of H. G.

Wells, in which every member of a privileged class must annually pass a fixed number of days alone in immediate and elementary contact with natural forces.

Books are of four kinds; by clever people who know their subject, by clever people who do not, by stupid people who know their subject, and by stupid people who do not. The first are the most brilliant, the second the most suggestive, the third the most reliable, the fourth the most consoling. The present one is clever and to spare, but there are greater limitations on the other score. It is an "Essai de Psychologie Morbide," yet does not draw its references, of which there are many, from the best known contemporary sources, either on the philological or psychological side, and it is quite incoordinate with systematic psychopathology, so ought scarcely to be judged by psychiatric standards. On the grounds of suggestion and of literary quality, it is better justified in its graceful epigraph, *Vel taceas, vel meliora dic silentio.*

F. L. WELLS.

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JOURNALS AND NEW BOOKS

MIND. April, 1912. *Relevance* (pp. 154–166): F. C. S. SCHILLER. – An analysis of the concept of relevance into the notion of the subjectivity, the selectiveness, the honesty, and the disputableness of the relevant. Application is made to logic, the sciences, and philosophy, with the result of a voluntaristic as opposed to intellectualistic conception of knowledge. *Representational Pragmatism* (pp. 167–181): DOUGLAS C. MACINTOSH. – Adopts a point of view intermediate between traditional intellectualism and current pragmatism combining the intellectual "proximate genus of truth (representation of reality)" and the pragmatic "specific difference (sufficiency for all practical purposes)." *The Ethical Significance of the Idea Theory*—(II.) (pp. 182–200): R. M. MACIVER. – An ethical interpretation of Plato's doctrine of ideas. Philosophy, for Plato, is explanation. Plato's main interest was ethical. Consequently the metaphysics of the Idea is the result of an ethical demand, and the theory of ideas comes as the expression of an ethical need. The Idea is identified with the Good and with Reality, all else is unreal. *"Matter and Memory"* (pp. 201–232): EDWARD DOUGLAS FAWCETT. – A rather detailed exposition with a criticism of the fundamental difficulties of M. Bergson's "Matter and Memory." The main force of criticism is directed against the Intuitionist method. Certain inconsistencies are pointed out between *Time and Free Will* and *Matter and Memory* centering chiefly around the problem of space. *Discussions: Thought and its Function* (pp. 233–237): ADDISON W. MOORE. – A reply by the author to Mr. Murray's review of *Pragmatism and its Critics. Dr. Alexander and the A Priori* (pp. 238–240): H. S. SHELTON. – Charges Dr. Alexander with a misconception of Spencer's view of the *a priori. Critical Notes:* H. Richards, *Platonica:* A. E. TAYLOR. E. E. C. Jones, *A New Law of Thought and its Logical Bearings:* F. C. S. SCHILLER. René Berthelot,

Un Romantisme Utilitaire: Etude sur le Mouvement Pragmatiste: F. C. S. SCHILLER. J. Welton, *The Psychology of Education:* W. H. WINCH. A. Müller, *Das Problem des absoluten Raumes und seine Beziehung zum allgemeinen Raumproblem:* P. E. B. JOURDAIN. *New Books. Philosophical Periodicals. Notes.*

Löwenberg, Dr. J. Hegel's Entwürfe zur Enzyklopädie und Propädeutik. Leipzig: Felix Meiner. 1912. Pp. vi + 58. M. 3.40.

Radhakrishnan, S. Essentials of Psychology. Oxford: University Press. 1912. Pp. 75.

Wundt, W. An Introduction to Psychology. Translated by Dr. R. Pintner. London: Allen and Company. Pp. xi + 198. 3s. 6d.

NOTES AND NEWS

Dr. J. E. W. WALLIN, Director of the Psychological Clinic in the University of Pittsburgh, has been appointed R. B. Mellon Fellow in the division of smoke investigation in the department of industrial research of the university, with the immediate duties of making a preliminary survey of the literature bearing on the psychology of smoke, and of outlining a plan of investigation in this field. Owing to the lack of bibliographies bearing on this topic, he will be pleased to receive statements from any one who has made observations on the mental influences of smoke, or who is in a position to supply references.

THE New York Academy of Sciences announces for December 6 a lecture by Professor Hugo de Vries on "Experimental Evolution," which will be given in cooperation with the American Museum of Natural History.

ON October 9, Dr. Henry M. Sheffer lectured at the University of Wisconsin on "The Revolution in Logic and the 'New' Philosophy." He repeated this lecture at the University of Chicago the following night.

MR. W. H. MILLS, M.A., of Jesus College, has been appointed demonstrator to the Jacksonian professor of natural experimental philosophy at Cambridge University in place of the late Mr. H. O. Jones.

DR. RAYMOND DODGE, professor of psychology at Wesleyan University, Middletown, Connecticut, has been appointed consulting experimental psychologist at the Nutrition Laboratory of the Carnegie Institution.

"The Problem of Christianity" is the subject of the eight Lowell lectures to be given by Professor Josiah Royce, of Harvard University, on Monday and Thursday afternoons, beginning November 18.

ON November 11, Dr. H. L. Hollingworth, of Columbia University, read a paper on "The Relation of Psychology to Medicine and Law" at a meeting of the Society of Medical Jurisprudence.